

# PATENT COOPERATION TREATY

**PCT**

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing: 18 January 2001 (18.01.01)	
International application No.: PCT/EP00/06403	Applicant's or agent's file reference: 402559WO
International filing date: 05 July 2000 (05.07.00)	Priority date: 12 July 1999 (12.07.99)
Applicant: PETERS, Michiel, Gerard et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:  
10 November 2000 (10.11.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer:  J. Zahra Telephone No.: (41-22) 338.83.38
---	---

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KLEIN, Bart  
KONINKLIJKE KPN N.V.  
P.O. Box 95321  
2509 CH Den Haag  
PAYS-BAS

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing  
(day/month/year) 07.11.2001

Applicant's or agent's file reference  
402559WO

IMPORTANT NOTIFICATION

International application No.  
PCT/EP00/06403

International filing date (day/month/year)  
05/07/2000

Priority date (day/month/year)  
12/07/1999

Applicant  
KONINKLIJKE KPN N.V.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer

Cornudet-Henschel, V

Tel. +49 89 2399-7371



## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>402559W0</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/EP 00/ 06403</b>	International filing date (day/month/year) <b>05/07/2000</b>	(Earliest) Priority Date (day/month/year) <b>12/07/1999</b>
Applicant <b>KONINKLIJKE KPN N.V.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1  
☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/06403

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04J14/02 H04B10/213

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, WPI Data, EP0-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 97 09803 A (NORTHERN TELECOM LTD) 13 March 1997 (1997-03-13) page 11, line 24 -page 12, line 18  abstract; figures 2,4,7	1,2,4,5  3,6-8, 13-15
X A	EP 0 859 484 A (HITACHI LTD) 19 August 1998 (1998-08-19) column 11, line 54 -column 12, line 6 abstract; figures 1,5  -/-	1  5,13



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

25 October 2000

Date of mailing of the international search report

06/11/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Goudelis, M

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/06403

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ARECCO F ET AL: "A TRANSPARENT, ALL-OPTICAL, METROPOLITAN NETWORK EXPERIMENT IN A FIELD ENVIRONMENT: THE PROMETEO SELF-HEALING RING" JOURNAL OF LIGHTWAVE TECHNOLOGY, US, IEEE. NEW YORK, vol. 15, no. 12, 1 December 1997 (1997-12-01), pages 2206-2212, XP000727508 ISSN: 0733-8724 cited in the application abstract; figures 1,2,5 -----</p>	1,2,13

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/06403

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
W0 9709803 A	13-03-1997	EP 0848873 A JP 10511250 T US 5933258 A	24-06-1998 27-10-1998 03-08-1999
EP 0859484 A	19-08-1998	JP 10233735 A CN 1202057 A	02-09-1998 16-12-1998

# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only	
<b>PCT/EP 00 / 06403</b>	
International Application No.	
05 JUL 2000	05. 07. 2000
International Filing Date	
EUROPEAN PATENT OFFICE PCT INTERNATIONAL APPLICATION Name of receiving Office and "PCT International Application"	
Applicant's or agent's file reference (if desired) (12 characters maximum)	
402559WO	

**Box No. I TITLE OF INVENTION**

Optical transmission network having a protection configuration.

**Box No. II APPLICANT**

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

KONINKLIJKE KPN N.V.  
Stationsplein 7  
9726 AE GRONINGEN  
The Netherlands

☐ This person is also inventor.

Telephone No.

+31 70 3323678

Facsimile No.

+31 70 3323840

Teleprinter No.

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant for the purposes of:

☐

all designated States

☒

all designated States except the United States of America

☐

the United States of America only

☐

the States indicated in the Supplemental Box

**Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)**

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

PETERS  
Michiel Gerard  
K. Doormanlaan 75  
3572 NH UTRECHT  
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant for the purposes of:

☐

all designated States

☐

all designated States except the United States of America

☒

the United States of America only

☐

the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

**Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒

agent

☐

common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

KLEIN Bart  
KONINKLIJKE KPN N.V.  
P.O. BOX 95321  
2509 CH THE HAGUE  
The Netherlands

Telephone No.

+31 70 3323678

Facsimile No.

+31 70 3323840

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

## Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

*If none of the following sub-boxes is used, this sheet should not be included in the request.*

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

VAN DER TOL  
Johannes Jacobus Gerardus Maria  
Gooisehof 142  
5709 LL HELMOND  
The Netherlands

This person is:

- ☐ applicant only  
☒ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

**Box No.V DESIGNATION OF STATES**

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

**Regional Patent**

- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

**National Patent** (if other kind of protection or treatment desired, specify on dotted line):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> <b>AE</b> United Arab Emirates                        | <input checked="" type="checkbox"/> <b>LR</b> Liberia                                   |
| <input checked="" type="checkbox"/> <b>AL</b> Albania                                     | <input checked="" type="checkbox"/> <b>LS</b> Lesotho                                   |
| <input checked="" type="checkbox"/> <b>AM</b> Armenia                                     | <input checked="" type="checkbox"/> <b>LT</b> Lithuania                                 |
| <input checked="" type="checkbox"/> <b>AT</b> Austria                                     | <input checked="" type="checkbox"/> <b>LU</b> Luxembourg                                |
| <input checked="" type="checkbox"/> <b>AU</b> Australia                                   | <input checked="" type="checkbox"/> <b>LV</b> Latvia                                    |
| <input checked="" type="checkbox"/> <b>AZ</b> Azerbaijan                                  | <input checked="" type="checkbox"/> <b>MA</b> Morocco                                   |
| <input checked="" type="checkbox"/> <b>BA</b> Bosnia and Herzegovina                      | <input checked="" type="checkbox"/> <b>MD</b> Republic of Moldova                       |
| <input checked="" type="checkbox"/> <b>BB</b> Barbados                                    | <input checked="" type="checkbox"/> <b>MG</b> Madagascar                                |
| <input checked="" type="checkbox"/> <b>BG</b> Bulgaria                                    | <input checked="" type="checkbox"/> <b>MK</b> The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> <b>BR</b> Brazil                                      | <input checked="" type="checkbox"/> <b>MN</b> Mongolia                                  |
| <input checked="" type="checkbox"/> <b>BY</b> Belarus                                     | <input checked="" type="checkbox"/> <b>MW</b> Malawi                                    |
| <input checked="" type="checkbox"/> <b>CA</b> Canada                                      | <input checked="" type="checkbox"/> <b>MX</b> Mexico                                    |
| <input checked="" type="checkbox"/> <b>CH</b> and <b>LI</b> Switzerland and Liechtenstein | <input checked="" type="checkbox"/> <b>NO</b> Norway                                    |
| <input checked="" type="checkbox"/> <b>CN</b> China                                       | <input checked="" type="checkbox"/> <b>NZ</b> New Zealand                               |
| <input checked="" type="checkbox"/> <b>CR</b> Costa Rica                                  | <input checked="" type="checkbox"/> <b>PL</b> Poland                                    |
| <input checked="" type="checkbox"/> <b>CU</b> Cuba  | <input checked="" type="checkbox"/> <b>PT</b> Portugal                                  |
| <input checked="" type="checkbox"/> <b>CZ</b> Czech Republic                              | <input checked="" type="checkbox"/> <b>RO</b> Romania                                   |
| <input checked="" type="checkbox"/> <b>DE</b> Germany                                     | <input checked="" type="checkbox"/> <b>RU</b> Russian Federation                        |
| <input checked="" type="checkbox"/> <b>DK</b> Denmark                                     | <input checked="" type="checkbox"/> <b>SD</b> Sudan                                     |
| <input checked="" type="checkbox"/> <b>DM</b> Dominica                                    | <input checked="" type="checkbox"/> <b>SE</b> Sweden                                    |
| <input checked="" type="checkbox"/> <b>EE</b> Estonia                                     | <input checked="" type="checkbox"/> <b>SG</b> Singapore                                 |
| <input checked="" type="checkbox"/> <b>ES</b> Spain                                       | <input checked="" type="checkbox"/> <b>SI</b> Slovenia                                  |
| <input checked="" type="checkbox"/> <b>FI</b> Finland                                     | <input checked="" type="checkbox"/> <b>SK</b> Slovakia                                  |
| <input checked="" type="checkbox"/> <b>GB</b> United Kingdom                              | <input checked="" type="checkbox"/> <b>SL</b> Sierra Leone                              |
| <input checked="" type="checkbox"/> <b>GD</b> Grenada                                     | <input checked="" type="checkbox"/> <b>TJ</b> Tajikistan                                |
| <input checked="" type="checkbox"/> <b>GE</b> Georgia                                     | <input checked="" type="checkbox"/> <b>TM</b> Turkmenistan                              |
| <input checked="" type="checkbox"/> <b>GH</b> Ghana                                       | <input checked="" type="checkbox"/> <b>TR</b> Turkey                                    |
| <input checked="" type="checkbox"/> <b>GM</b> Gambia                                      | <input checked="" type="checkbox"/> <b>TT</b> Trinidad and Tobago                       |
| <input checked="" type="checkbox"/> <b>HR</b> Croatia                                     | <input checked="" type="checkbox"/> <b>TZ</b> United Republic of Tanzania               |
| <input checked="" type="checkbox"/> <b>HU</b> Hungary                                     | <input checked="" type="checkbox"/> <b>UA</b> Ukraine                                   |
| <input checked="" type="checkbox"/> <b>ID</b> Indonesia                                   | <input checked="" type="checkbox"/> <b>UG</b> Uganda                                    |
| <input checked="" type="checkbox"/> <b>IL</b> Israel                                      | <input checked="" type="checkbox"/> <b>US</b> United States of America                  |
| <input checked="" type="checkbox"/> <b>IN</b> India                                       | <input checked="" type="checkbox"/> <b>UZ</b> Uzbekistan                                |
| <input checked="" type="checkbox"/> <b>IS</b> Iceland                                     | <input checked="" type="checkbox"/> <b>VN</b> Viet Nam                                  |
| <input checked="" type="checkbox"/> <b>JP</b> Japan                                       | <input checked="" type="checkbox"/> <b>YU</b> Yugoslavia                                |
| <input checked="" type="checkbox"/> <b>KE</b> Kenya                                       | <input checked="" type="checkbox"/> <b>ZA</b> South Africa                              |
| <input checked="" type="checkbox"/> <b>KG</b> Kyrgyzstan                                  | <input checked="" type="checkbox"/> <b>ZW</b> Zimbabwe                                  |
| <input checked="" type="checkbox"/> <b>KP</b> Democratic People's Republic of Korea       |   |
| <input checked="" type="checkbox"/> <b>KR</b> Republic of Korea                           |   |
| <input checked="" type="checkbox"/> <b>KZ</b> Kazakhstan                                  |   |
| <input checked="" type="checkbox"/> <b>LC</b> Saint Lucia                                 |   |
| <input checked="" type="checkbox"/> <b>LK</b> Sri Lanka                                   |   |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐  
☐

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) (12/07/99) 12 JUL 1999	1012568	NL		
item (2)				
item (3)				

☐ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s):

\* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box

Box No. VII INTERNATIONAL SEARCHING AUTHORITY		
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):	
ISA / EP	Date (day/month/year)	Number Country (or regional Office)
	13 MAR 2000	SN 33496 NL NL

## Box No. VIII CHECK LIST: LANGUAGE OF FILING

This international application contains the following number of sheets:

request : 4  
 description (excluding sequence listing part) : 15  
 claims : 6  
 abstract : 1  
 drawings : 7  
 sequence listing part of description : .

Total number of sheets : 33

This international application is accompanied by the item(s) marked below:

1. ☒ fee calculation sheet
2. ☒ separate signed power of attorney
3. ☒ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☒ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer-readable form
9. ☒ other (specify): search report

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application:

English

## Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



KLEIN Bart

1. Date of actual receipt of the purported international application:	For receiving Office use only 05 JUL 2000 (05. 07. 2000)	2. Drawings: <input checked="" type="checkbox"/> received: <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA /	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

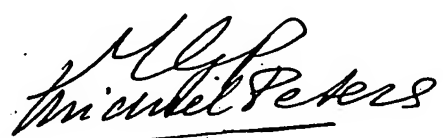
Date of receipt of the record copy by the International Bureau:

For International Bureau use only

## Supplemental Box

*If the Supplemental Box is not used, this sheet should not be included in the request.*

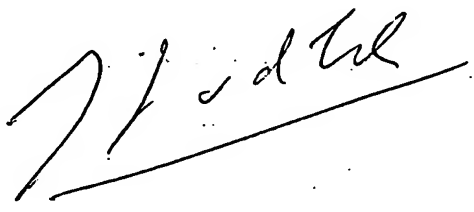
1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:
  - (i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
  - (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
  - (iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;
  - (iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
  - (v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;
  - (vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;
  - (vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.
2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.
3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.

  
 PETERS  
 Michiel Gerard

## Supplemental Box

*If the Supplemental Box is not used, this sheet should not be included in the request.*

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:
  - (i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
  - (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
  - (iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;
  - (iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
  - (v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;
  - (vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;
  - (vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.
2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.
3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.



VAN DER TOL  
Johannes Jacobus Gerardus Maria

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EP

# PCT

## CHAPTER II

### DEMAND

under Article 31 of the Patent Cooperation Treaty:  
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only		
Identification of IPEA		Date of receipt of DEMAND
<b>Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION</b>		Applicant's or agent's file reference 402559WO
International application No. PCT/EP00/06403	International filing date (day/month/year) 05.07.2000 (5 July 2000)	(Earliest) Priority date (day/month/year) 12.07.1999 (12 July 1999)
Title of invention Optical transmission network having a protection configuration.		
<b>Box No. II APPLICANT(S)</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  KONINKLIJKE KPN N.V. Stationsplein 7 9726 AE GRONINGEN The Netherlands		Telephone No.: +31 70 332 30 91
		Facsimile No.: +31 70 332 38 40
		Teleprinter No.:
State (that is, country) of nationality: NL		State (that is, country) of residence: NL
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  PETERS, Michiel Gerard K. Doormanlaan 75 3572 NH UTRECHT The Netherlands		
State (that is, country) of nationality: NL		State (that is, country) of residence: NL
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  VAN DER TOL, Johannes Jacobus Gerardus Maria Gooisehof 142 5709 LL HELMOND The Netherlands		
State (that is, country) of nationality: NL		State (that is, country) of residence: NL
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.		

**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**The following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*KLEIN Bart  
KONINKLIJKE KPN N.V.  
P.O. BOX 95321  
2509 CH THE HAGUE  
The Netherlands

Telephone No.:

+31 70 332 30 91

Facsimile No.:

+31 70 332 38 40

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:\***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

\* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

**Box No. VI CHECK LIST**

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- |  |   |        |
|--|---|--------|
| 1. translation of international application                              | : | sheets |
| 2. amendments under Article 34   | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19  | : | sheets |
| 5. letter  | : | sheets |
| 6. other ( <i>specify</i> )  | : | sheets |

For International Preliminary Examining Authority use only

received                      not received

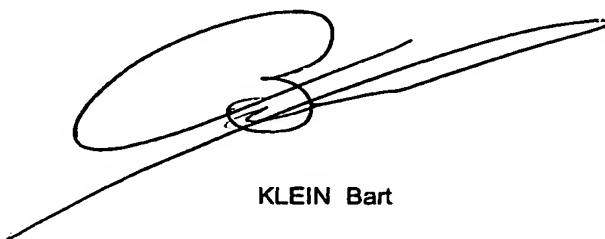
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet  | 4. <input type="checkbox"/> statement explaining lack of signature                                  |
| 2. <input type="checkbox"/> separate signed power of attorney                                       | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input checked="" type="checkbox"/> copy of general power of attorney, reference number, if any: | 6. <input type="checkbox"/> other ( <i>specify</i> ):   |

**Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).



KLEIN Bart

**For International Preliminary Examining Authority use only**

1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

**For International Bureau use only**

Demand received from IPEA on:

## PCT

## FEE CALCULATION SHEET

## Annex to the Demand for international preliminary examination

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">International application No.</td> <td>PCT/EP00/06403</td> </tr> <tr> <td>Applicant's or agent's file reference</td> <td>402559WO</td> </tr> </table>	International application No.	PCT/EP00/06403	Applicant's or agent's file reference	402559WO	<div style="border: 1px solid black; padding: 5px;"> For International Preliminary Examining Authority use only </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> Date stamp of the IPEA </div>														
International application No.	PCT/EP00/06403																		
Applicant's or agent's file reference	402559WO																		
Applicant KONINKLIJKE KPN N.V.																			
<b>Calculation of prescribed fees</b>  <table style="width: 100%;"> <tr> <td style="width: 60%;">1. Preliminary examination fee .....</td> <td style="width: 20%; text-align: center;">EUR 1.533</td> <td style="width: 20%; text-align: center;">P</td> </tr> <tr> <td colspan="3" style="height: 20px;"></td> </tr> <tr> <td>2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i> .....</td> <td style="text-align: center;">EUR 147</td> <td style="text-align: center;">H</td> </tr> <tr> <td colspan="3" style="height: 20px;"></td> </tr> <tr> <td>3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box.....</td> <td style="text-align: center;">EUR 1.680</td> <td></td> </tr> <tr> <td></td> <td colspan="2" style="text-align: center; border: 1px solid black;">TOTAL</td> </tr> </table>		1. Preliminary examination fee .....	EUR 1.533	P				2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i> .....	EUR 147	H				3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box.....	EUR 1.680			TOTAL	
1. Preliminary examination fee .....	EUR 1.533	P																	
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3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box.....	EUR 1.680																		
	TOTAL																		
<b>Mode of Payment</b>  <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)</td> <td><input type="checkbox"/> cash</td> </tr> <tr> <td><input type="checkbox"/> cheque</td> <td><input type="checkbox"/> revenue stamps</td> </tr> <tr> <td><input type="checkbox"/> postal money order</td> <td><input type="checkbox"/> coupons</td> </tr> <tr> <td><input type="checkbox"/> bank draft</td> <td><input type="checkbox"/> other (specify):</td> </tr> </table>		<input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash	<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps	<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons	<input type="checkbox"/> bank draft	<input type="checkbox"/> other (specify):										
<input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash																		
<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps																		
<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons																		
<input type="checkbox"/> bank draft	<input type="checkbox"/> other (specify):																		
<b>Deposit Account Authorization</b> <i>(this mode of payment may not be available at all IPEAs)</i>  The IPEA/ <u>EP</u> <input checked="" type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account.  <input checked="" type="checkbox"/> <i>(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)</i> is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.  <table style="width: 100%;"> <tr> <td style="width: 30%; text-align: center;">28090011</td> <td style="width: 30%; text-align: center;">08/11/2000</td> <td style="width: 40%; text-align: center;">  KLEIN Bart </td> </tr> <tr> <td style="text-align: center;">Deposit Account Number</td> <td style="text-align: center;">Date (day/month/year)</td> <td style="text-align: center;">Signature</td> </tr> </table>		28090011	08/11/2000	KLEIN Bart	Deposit Account Number	Date (day/month/year)	Signature												
28090011	08/11/2000	KLEIN Bart																	
Deposit Account Number	Date (day/month/year)	Signature																	

**ALLGEMEINE VOLLMACHT  
GENERAL AUTHORISATION  
POUVOIR GENERAL**

Kopie für den Bevollmächtigten  
to be returned to authoriser  
copie destinée au mandataire

AV Nr. (bitte bei jeder Korrespondenz angeben)  
GA No. (please quote in all correspondence)  
PG n° (prière de mentionner dans toute correspondance)

21396 (rev.)

2 Ich (Wir) / I (We) / Je (Nous)

Koninklijke KPN N.V.

Stationsplein 7

9726 AE GRONINGEN

The Netherlands

3 bevollmächtigte(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

the following employees of Koninklijke KPN N.V.

KLEIN Bart (Professional Representative)

KRUK Wiggert Johan (Professional Representative)

WUYTS Koenraad Maria (Professional Representative)

mailing address: Koninklijke KPN N.V.  
Intellectual Property Group  
P.O. Box 95321  
2509 CH THE HAGUE  
The Netherlands

4 mich (uns) in den durch das Europäische PatentÜbereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten  
alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.  
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.

À me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

☒ Die Vollmacht gilt auch für Verfahren nach dem Vertrag über die Internationale Zusammenarbeit auf dem Gebiet des Patentwesens.  
This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.  
Ce pouvoir s'applique également à toute procédure instituée par le Traité de coopération en matière de brevets.

☐ Weitere Vertreter sind auf einem geordneten Blatt angegeben. / Additional representatives indicated on supplementary sheet.  
Les autres mandataires sont mentionnés sur une feuille supplémentaire.

5 ☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

6 ☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.  
Please return the yellow copy, supplemented by the General Authorisation No., to the authoriser.  
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu The Hague

Datum / Date June 06, 2000

Unterschrift(en) / Signature(s)

B. KLEIN (Head Intellectual Property Group)

7 Das Formblatt muß vom (von der) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterschrieben sein. Nach der Unterschrift bitte die (die) Namen des (der) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft angeben).

The form must bear the personal signature(s) of the authoriser(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name(s) of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

From the RECEIVING OFFICE

**PCT**NOTIFICATION OF THE INTERNATIONAL  
APPLICATION NUMBER AND OF THE  
INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

To:

Klein, Bart  
KONINKLIJKE KPN N.V.

P.O. Box 95321

NL-2509 CH Den Haag KPN GIE

PAYS-BAS

Date of mailing  
(day/month/year)

06.09.00

Applicant's or agent's file reference

402559W0

IMPORTANT NOTIFICATION

International application No.

PCT/EP 00/06403

International filing date (day/month/year)

05/07/2000

Priority date (day/month/year)

12/07/1999

Applicant

KONINKLIJKE KPN N.V.

Title of the invention

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.
2. The applicant is further notified that the record copy of the international application was transmitted to the International Bureau on the above date of mailing.
3. ☐ Other:

\* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

Name and mailing address of the receiving Office

European Patent Office, P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Mrs. T. Bröcker-Tazelaar

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

KLEIN, Bart  
KONINKLIJKE KPN N.V.  
P.O. Box 95321  
NL-2509 CH Den Haag  
PAYS-BAS

NOTIFICATION OF RECEIPT  
OF DEMAND BY COMPETENT INTERNATIONAL  
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence  
and Administrative Instructions, Section 601(a))

Date of mailing  
(day/month/year)

27. 11. 00

Applicant's or agent's file reference  
402559W0

## IMPORTANT NOTIFICATION

International application No.

PCT/EP 00/ 06403

International filing date (day/month/year)

05/07/2000

Priority date (day/month/year)

12/07/1999

Applicant

KONINKLIJKE KPN N.V.

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

10/11/2000

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).  
☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).  
☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/

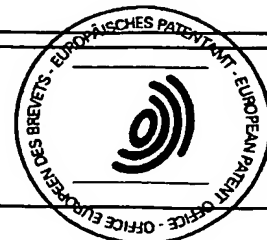


European Patent Office  
D-80298 Munich  
Tel. (+49-89) 2399-0, Tx: 523656 epmu d  
Fax: (+49-89) 2399-4465

Authorized officer

MOSER A R

Tel. (+49-89) 2399-8240



# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT  
OR THE DECLARATION

(PCT Rule 44.1)

To:  
KONINKLIJKE KPN N.V.  
Attn. KLEIN, B.  
P.O. Box 95321  
NL-2509 CH Den Haag  
NETHERLANDS

Date of mailing (day/month/year)	06/11/2000
-------------------------------------	------------

Applicant's or agent's file reference 402559W0	FOR FURTHER ACTION      See paragraphs 1 and 4 below
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International application No. PCT/EP 00/ 06403	International filing date (day/month/year)
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05/07/2000
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Applicant  KONINKLIJKE KPN N.V.	
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1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.  
**Filing of amendments and statement under Article 19:**  
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO,  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland  
Fascimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.


☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Lisa O'Sullivan
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## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments?

##### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

# PATENT COOPERATION TREATY

# PCT

REC'D 12 NOV 2001

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference <b>402559WO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/EP00/06403</b>	International filing date (day/month/year) <b>05/07/2000</b>	Priority date (day/month/year) <b>12/07/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>H04J14/02</b>		
Applicant <b>KONINKLIJKE KPN N.V.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
  
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I    ☒ Basis of the report
- II   ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  ☐ Lack of unity of invention
- V    ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  <b>10/11/2000</b>	Date of completion of this report  <b>07.11.2001</b>
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized officer  <b>Liebhart, M</b>  Telephone No. +49 89 2399 7598



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/06403

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-15 as originally filed

**Claims, No.:**

1-16 with telefax of 08/10/2001

**Drawings, sheets:**

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/06403

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-16
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-16
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The invention (claim 1) relates to a method for transmitting optical signals having several priorities via a transmission network with protection.

The closest prior art available is WO 97 09803 which discloses a discontinuous ring by separate bidirectional optical communication links (point-to-point links) and ratios of working and protection channels. When a link failure on the working channel occurs, protection-switched traffic is routed around the ring via the protection channel. Optical switches adjacent the link failure and nodes not adjacent the link failure are controlled differently. In certain cases (so called channel failures), the switching occurs in the electrical domain.

The invention primarily differs from the system of WO 97 09803 in that a) the transmission network is an optical network and b) the high-priority signal is switched on the protection channel by optical switching means upon detection of a signal characteristic of the high-priority signal.

The advantage over the prior art is the fact that the inventive concept provides for a fast switching method thus resulting in a more effective use of optical networks in general, and, as far as independent claim 13 is concerned (see below), annular optical WDM networks in particular.

No indication of such a concept is given in any other available prior art document. Therefore the subject-matter of claim 1 is new and involves an inventive step (Articles 33(2) and (3) PCT).

The invention further relates to an annular optical transmission network with protection for the transmission of optical WDM signals (independent claim 13).

The primary differences and same advantages apply to the system as already

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP00/06403

mentioned above.

Therefore the subject-matter of independent claim 13 is new and involves an inventive step (Articles 33(2) and (3) PCT).

The remaining claims 2-12 as well as 14-16 are dependent on claims 1 and 13 respectively and therefore meet the requirements concerning novelty and inventive step (Articles 33(2) and (3) PCT).

**Re Item VIII**

**Certain observations on the international application**

The wording of claim 14 ("the and the", see pg. 21, line 11) as well as the sentence on page 2, lines 28-34 of the description are grammatically incorrect.

F. CLAIMS

1. Optical transmission network with protection for the transmission of optical signals having several priorities, comprising:

- an operational connection through the network for transmitting an optical signal having a high priority, and
- a protection connection corresponding to the operational connection for transmitting the optical signal having a high priority in the event of an error condition of the operational connection, which protection connection is, at least in part, arranged for transmitting an optical signal having a low priority, which gives way to the transmission of the optical signal having a high priority in the event of said error condition,

characterised in that

said part of the protection connection is provided with

- + optical detection means for detecting the optical signal having a high priority on the protection connection, and
- + optical switching means for switching on and off the transmission of the optical signal having a low priority over said part of the protection connection under control of the optical detection means.

2. Optical transmission network according to claim 1, characterised in that the protection connection includes at least one optical-connection section over which the transmission of optical signals having a low priority takes place at a first wavelength spectrum, the transmission of the optical signals having a high priority takes place at a second wavelength spectrum, which differs from the first wavelength spectrum, and the optical detection means are wavelength-selective for a difference spectrum in which the second wavelength spectrum differs from the first one.

3. Optical transmission network according to claim 1, characterised in that the protection connection includes at least

*Replaced by Article 34*

one optical-connection section, which is bidirectional and over which the transmission of the optical signals having a low priority takes place in a direction opposite to the one of the transmission of the optical signals having a high priority in the event of an error condition of the operational connection, and the optical detection means are direction-selective.

4. Optical transmission network according to claim 1, characterised in that the protection connection includes at least one optical-connection section over which the transmission of optical signals having a low priority takes place, the optical signals having a high priority include a signal which is specific for signals having a high priority, and the optical detection means are selective for said specific signal.

5. Optical transmission network according to claim 2, 3 or 4, characterised in that the switching means include a switch which, in a first switching mode, adds and drops, respectively, the low-priority signal to or from the protection connection and, in a second switching mode, passes the high-priority signal on over the protection connection.

6. Optical transmission network according to claim 5, characterised in that the detection means include an optical-power splitter for tapping a part of the optical power present on a port of the switch to which an incoming end of the protection connection is coupled.

7. Optical transmission network according to claim 5, characterised in that the detection means include an optical-power splitter for tapping a portion of the optical power present on a port of the switch which, in the first switching mode of the switch, is connected through to a further port of the switch to which an incoming end of the protection connection is coupled.

8. Optical transmission network according to claim 5, characterised in that the detection means are directly coupled

to a port of the switch which, in the first switching mode of the switch, is connected through to a further port of the switch to which an incoming end of the protection connection is coupled.

5        9.     Optical transmission network according to any of the claims 1, -, 8, characterised in that:

-        the high- and/or low-priority signals are WDM signals.

10      10.    Optical transmission network according to any of the claims 2, 3 and 4, characterised in that:

-        the high- and low-priority signals are WDM signals, with the WDM signal of the low-priority signal comprising a number of WDM channels which is a subset of the number of WDM channels in the WDM signal of the high-priority signal,  
15      -        on either side of each optical-connection section in the protection connection, an OADM is included of which the switching means and detection means are part,

with, per OADM,

20      +        the detection means being coupled to at least one of the WDM channels of the high-priority signal, and

25      +        the switching means per WDM channel of the low-priority signal including a switch which, under the control of the detection means, has two switching modes - a first switching mode for adding and dropping signals having a low priority and a second switching mode for passing on signals having a high priority.

30      11.    Optical transmission network according to claim 10, characterised in that the high-priority signal includes a WDM channel having a wavelength which is specific to the high-priority signal, and that the detection means are coupled to the WDM channel having said specific wavelength.

35      12.    Optical transmission network according to claim 10, characterised in that the detection means per WDM channel include an optical-signal detector for controlling the switch associated with the WDM channel in question.

13. Annular optical transmission network with protection, for the transmission of optical WDM signals, comprising:

- a number of nodes included in, and mutually connected by, two optical connections forming two rings, hereinafter separately referred to as first and second rings, and together referred to as double ring, for signal transmission in two opposite transmission directions between the nodes,
- with each node being provided with a first and a second OADM, included in the first and in the second ring, respectively, and with protection-switching means for switching over from signal transmission over an operational connection by way of the double ring in a first and in a second transmission direction to signal transmission over a protection connection by way of the double ring, in the second and in the first transmission direction, respectively, and
- with a protection connection corresponding to an operational connection over a section of the double ring between a pair of adjacent nodes for the transmission of a WDM signal, by way of a portion of the double ring which is complementary to said section, in the event of an error condition of the operational connection over the section of the double ring,

characterised in that

- the complementary portion of the double ring comprises a further section between a further pair of adjacent nodes in the double ring, which further section is arranged for transmitting an optical signal having a low priority, which gives way to the transmission of an optical signal having a high priority, with the signal having a high priority including said WDM signal in the event of said error condition.

14. Annular optical transmission network according to claim 13, characterised in that

each of the nodes on either side of the further section of the double ring is provided with

- + optical detection means for detecting an optical signal having a high priority on the protection connection, and
- 5 + optical switching means for switching on and off the transmission of an optical signal having a low priority over the further section of the double ring under control of the optical detection means.

10 15. Annular optical transmission network according to claim 14, characterised in that

- the signals having a high and a low priority are WDM signals, with the WDM signal of the signal having a low priority comprising several WDM channels which are a subset  
15 of the number of WDM channels in the WDM signal of the signal having a high priority;
- OADMs, included with one another in one and the same ring on either side of the further section in the protection connection, the switching means and the detection means being part of the OADM, with, per OADM
- 20 + the detection means being coupled to at least one of the WDM channels of the signal having a high priority, and
- + the switching means per WDM channel of the signal having a low priority including a switch which, under the control of  
25 the detection means, has two switching modes - a first switching mode for adding and dropping signals with a low priority, and a second switching mode for passing on signals having a high priority.

30 16. Annular optical transmission network according to claim 15, characterised in that

- the high-priority signal includes a WDM channel having a wavelength which is specific to the high-priority signal, and the detection means are coupled to the WDM channel  
35 having said specific wavelength for driving the switch of each WDM channel of the signal having a low priority.

17. Annular optical transmission network according to claim 15, characterised in that

- a signal having a high priority over the protection connection by way of the first ring includes a WDM channel having a first wavelength which is specific to the signal having a high priority in the first transmission direction, and the signal having a high priority over the protection connection by way of the second ring includes a WDM signal having a second wavelength which is specific to the signal having a high priority in the second transmission direction, and the detection means include a first and a second optical-signal detector, which first signal detector is coupled to the WDM channel having the first specific wavelength for driving the switch of each WDM channel of the signal having a low priority over the protection connection by way of the first ring, and which second signal detector is coupled to the WDM channel having the second specific wavelength for driving the switch of each WDM channel of the signal having a low priority over the protection connection by way of the second ring.

18. Annular optical transmission network according to claim 17, characterised in that

- a WDM signal over an operational connection by way of the first ring between each pair of adjacent nodes includes a WDM channel having the second specific wavelength, and a WDM channel over an operational connection by way of the second ring between each pair of adjacent nodes includes a WDM channel having the first specific wavelength.

19. Annular optical transmission network according to claim 15, characterised in that

- the detection means per WDM channel include an optical-signal detector for controlling the switch associated with the WDM channel in question.

Set of Amended CLAIMS

1. Method for transmitting optical signals having several priorities via a transmission network with protection,

5 comprising steps of:

- transmitting an optical signal carrying traffic with a high priority, hereinafter called high priority signal ( $tr_H$ ), via an operational connection (WF; R1, R2) through the network,

10 - transmitting an optical signal carrying traffic with a low priority, hereinafter called low priority signal ( $tr_L$ ), via at least a part (PF1) of a protection connection (PF; R2, R1),

- protection switching for switching the traffic with high priority from being carried by an optical signal transmitted via the operational connection to being carried by an optical signal transmitted via the protection connection in the event of an error condition, and

20 - giving way the transmission of the low priority signal via at least said part of the protection connection in the event of said error condition under control of a detection of an optical signal signalling that a protection switching has occurred,

25 characterised in that

the transmission network is an optical network, in which the step of protection switching is carried out in such a way that the high priority signal ( $tr_H$ ) is switched by optical switching means (PS1; 73, 74) from the operational connection (WF; R1, R2) to the protection connection (PF; R2, R1), and

30 the step of giving way is carried out upon detection of a signal characteristic of the high priority signal ( $tr_H$ ) on the protection connection (PF; R2, R1).

2. Transmission method according to claim 1, characterised in that the transmission of the low priority signal is carried out at a first wavelength spectrum ( $\lambda_1, -$   
5  $\lambda_n$ ), the transmission of the high priority optical signals is carried out at a second wavelength spectrum ( $\lambda_1, - \lambda_n, \lambda_s$ ), which differs from the first wavelength spectrum, and the optical detection is carried out on the optical characteristic which corresponds to a difference  
10 spectrum ( $\lambda_s$ ), in which the second wavelength spectrum differs from the first one.

3. Transmission method according to claim 1, characterised in that the transmission of the low priority  
15 signal being carried out in a direction opposite to the one of the transmission of the high priority signal in the event of an error condition of the operational connection, and the optical detection is carried out in a direction-selective manner.

4. Transmission method according to claim 1, characterised in that the high priority signal includes a  
20 signal which is specific for the high priority signal, and the optical detection is carried out in a manner selective for said specific signal.

5. Transmission method according to claim 2, 3 or 4, characterised in that the switching is carried out by  
30 switching means ( $S_1; S_2; S_3; S_4$ ) between a first switching mode, in which the low-priority signal is added or dropped, respectively to and from the protection connection, and a second switching mode, in which the high-priority signal passes on over the protection connection.

08-10-2001

substitute sheet)

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EP000640

6. Transmission method according to claim 5,  
characterised in that the optical detection includes  
optical-power splitting by optical-power splitting means  
5 (C1) for tapping a part of the optical power present on a  
port (p1) of the switching means (S1) to which an incoming  
end of the protection connection (PF) is coupled.

7. Transmission method according to claim 5,  
10 characterised in that the optical detection includes  
optical-power splitting by optical-power splitting means  
(C3) for tapping a portion of the optical power present on  
a port (p4) of the switching means (S3) which, in the  
first switching mode, are connected through to a further  
15 port (p1) of the switching means to which an incoming end  
of the protection connection (PF) is coupled.

8. Transmission method according to claim 5,  
characterised in that the optical detection is carried out  
20 directly on a port (p4) of the switching means (S4),  
which, in the first switching mode, is connected through  
to a further port (p1) of the switching means to which an  
incoming end of the protection connection (PF) is coupled.

25 9. Transmission method according to any of the  
claims 1,-,8, characterised in that:  
the high- and/or low-priority signals are optical WDM  
signals ( $\lambda_1, -, \lambda_n, \lambda_s$ ; {W1}, {W2}, {P1}, {P2}).

30 10. Transmission method according to claim 1, 2 or 3,  
characterised in that:  
the high- and low-priority signals are WDM signals, with  
the WDM signal of the low-priority signal comprising a  
number of WDM channels ( $\lambda_1, -, \lambda_n$ ) which is at least a subset

of the number of WDM channels ( $\lambda_1, -, \lambda_n$ ;  $\lambda_1, -, \lambda_n, \lambda_s$ ) in the WDM signal of the high-priority signal, on either side of said part (PF1) of the protection connection, an OADM (40; 50) is included of which the switching means ( $SP_1, -, SP_n$ ;  $SQ_1, -, SQ_n$ ) and detection means (MM1, -, MMn; MM) are part, and in that, per OADM, the optical detection is carried out on at least one ( $\lambda_1, -, \lambda_n$ ;  $\lambda_s$ ) of the WDM channels of the high-priority signal, and the switching is carried out per WDM channel of the low-priority signal through switching means ( $SP_1, -, SP_n$ ;  $SQ_1, -, SQ_n$ ) under control of the optical detection (MM1, -, MMn; MM), the switching means having a first switching mode for adding and dropping a low priority signal and a second switching mode for passing on a high priority signal.

11. Transmission method according to claim 10, characterised in that the high-priority signal includes a WDM channel having a wavelength ( $\lambda_s$ ) which is specific to the high-priority signal, and that the optical detection is carried out by detection means (MM) coupled to the WDM channel having said specific wavelength.

12. Transmission method according to claim 10, characterised in that the optical detection is carried out per WDM channel ( $\lambda_1, -, \lambda_n$ ) by means of an optical signal detector (MM1, -, MMn) for controlling the switching means ( $SP_1, -, SP_n$ ) associated with the WDM channel in question.

13. Annular optical transmission network with protection, for the transmission of optical WDM signals, comprising: a number of nodes ( $RN_1, \dots, RN_4$ ) included in, and mutually connected by, two optical connections forming two optical rings, hereinafter separately also referred to as first

ring (R1) and second ring (R2), for optical signal transmission of WDM signals in two mutually opposite transmission directions between the nodes,

each node (70) comprising a first OADM (71) included in the first ring (R1) and a second OADM (72) included in the second ring (R2), and optical protection-switching means (73, 74) included between the two rings on either side of the first and second OADM's for optical protection-switching of WDM-signals between the two optical rings,  
characterised in that

- each (R1;R2) of the two rings includes:

+ a first set of WDM channels  $(\{\lambda_w\}; \{W1\}; \{W2\})$ , called operational channels, for forming operational connections over a concerned one (R1; R2) of the two rings for the transmission of optical signals of high priority, and

+ a second set of WDM channels  $(\{\lambda_1, -, \lambda_n\}; \{\lambda_1, -, \lambda_n, \lambda_s\}; \{P2\}; \{P1\})$ , called protection channels, for the transmission of optical signals of low priority  $(tr_L; tr_L(1))$  in normal operation, and for forming protection connections over said concerned one (R1; R2) of the two rings for high priority signals  $(tr_H; tr_H(\lambda_s2))$  upon occurrence of protection-switching in the event of an error condition of an operational connection over the other one (R2; R1) of the two rings, and

- each OADM (40; 50; 90) includes:

+ optical switching means  $(\{SP1, -, SPn\}; \{SQ1, -, SQn\}; SQ)$  for switching on and off low priority signals  $(tr_L; tr_L(1))$  over any of the protection channels of a ring concerned (R1;R2), and

+ optical detection means  $(\{MM1, -, MMn\}; MM)$  for detecting a high priority signal on at least one

protection channel  $((\lambda_1, \dots, \lambda_n); \lambda_s; \lambda_{s2})$  of the set of protection channels.

14. Annular optical transmission network according to claim 13, characterised in that the first set  $(\{W_1\}; \{W_2\})$  of WDM channels of each  $(R_1; R_2)$  of the two rings includes a recognition channel  $(\lambda_s; \lambda_{s1}, \lambda_{s2})$ , which corresponds to a recognition channel having the same specific wavelength  $(\lambda_s; \lambda_{s1}, \lambda_{s2})$  included in the second set  $(\{P_1\}; \{P_2\})$  of WDM channels of the other one  $(R_2; R_1)$  of the two rings, the and the optical detection means (MM) of each OADM have been coupled to the recognition channel  $(\lambda_s; \lambda_{s1}, \lambda_{s2})$  of the second set of WDM channels for driving the switching means  $(SQ_1, \dots, SQ_n; SQ)$  of the WDM channels of the second set, the recognition channel of the first set of operations channels of one  $(R_1; R_2)$  of the two rings having a specific wavelength  $(\lambda_s; \lambda_{s1}, \lambda_{s2})$  for recognising the high priority signal on the corresponding recognition channel of the second set of WDM channels of the other one  $(R_2; R_1)$  of the two rings.

15. Annular optical transmission network according to claim 14, characterised in that each OADM includes an add/drop means (98) for adding and dropping the recognition channel  $(\lambda_{s1})$  of the first set  $(\{W_1\})$  of WDM channels.

16. Annular optical transmission network according to claim 15, characterised in that the detection means include an optical-signal detector  $(MM_1, \dots, MM_n)$  per WDM channel  $(\lambda_1, \dots, \lambda_n)$  for controlling the switch  $(SP_1, \dots, SP_n)$  associated with the WDM channel in question.